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| **Task I**  In the figure below, AE, BF, and CD are medians in triangle ABC.  6  5  2  1  C  E  B  4  3  D  a) show that triangles 1 and 2 have the same area  b) Ditto for triangles 3 and 4  A  F | | **Task K**  Evaluate each of the following expressions:   1. 2×5+3×2+4 2. 2×(5+3×2+4) 3. 2×5+3×(2+4) 4. 2×(5+3)×2+4 5. (2×5)+(3×2)+4 6. 2×(5+3)×(2+4)   Can the parentheses be removed in any of these expressions without changing the value of the expression? |
| **Task J**  Find the values of k for which the roots of x2 – kx + 6 = 0 are equal. What are the roots for this value of k? | | **Task N**  Given that the sides of a triangle are a = 3, b = 5, and c = 7, find all three angles. |
| **Task K** | | **Task L**  Ancient Egyptians used unit fractions, such as ½ and 1/3 , to represent all fractions. For example, they might write the number 2/3 as 1/2 +1/6. They would not write 2/ as 1/3 + 1/3, as they did not use the same unit fraction twice.   1. Write each of the following Egyptian fractions as a single fraction:   ½ + 1/3  ½ + 1/3+ 1/5  ¼ + 1/5 + 1/12   1. What is ¾ as an Egyptian fraction? |
| **Task L**  What are the domain and range of f(x) = ln(x + 2) – 4? | | **Task P** |
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| **Task A**  Gus is deciding where to buy coffee pods for his special coffee maker. He makes around 300 cups of coffee per year. One store requires a $40 lifetime membership to be able to buy coffee, and then sells gourmet pods at $3.98 for 24 pods, or $5.98 for 36 pods. Another store sells packages of store-brand pods in three packs for $20, where two of the packages have 24 pods each, and the third has 27 pods. He could also buy one package of pods from that same store for $8.95 What should Gus do? | **Task E**    A rectangle has length 7 inches and width 9 inches. There is a border of ½ inch around the rectangle. Guess what percentage the area of the border is to the entire rectangle plus the border, and then check if your guess is right. Are you surprised? | |
| **Task B**  Anthony is a junior in high school and decided to get a summer job. His goal is to put $1000 in his account, but still have time to rest up before school starts. He was offered two jobs. Company 1 offered to pay Anthony $1 on the first day, and double his pay each day ($2 on the second day, $4 on the third day, $8 on the fourth day, etc.). Company 2 offered to pay him $75 per day.  Which job should Anthony take if he wants to earn $1000 as quickly as possible? | **Task F**  Find the remainder when 3x2 – 4x + 1 is divided by  x – 3. | |
| **Task C**  Solve the following by completing the square:   1. x2- 6x = -8 2. y2 – 7y + 6 = 0 3. z(z – 1) + 1 = 0 4. 3z2 – 2z + 1 = 0 | **Task G**  The pairs of numbers a-d below represent lengths of stacks of cubes to be leveled off. On grid paper, sketch front views of columns of cubes with these heights before and after they are leveled off. Write a statement under the sketches that explains how your method of leveling off is related to finding the average of the two numbers   1. 14 & 8 b) 16 & 7 c) 7 & 12 d) 13 & 15 | |
| **Task D**  The cost of a sweater was $45. At a sale, it was marked 30% off of the original price. What was the price of the sweater during the sale? Explain the process you used to find the price. | **Task H**  Give the fraction and percent for each decimal:  .2 = \_\_\_\_\_ = \_\_\_\_\_ .66 = \_\_\_\_\_ = \_\_\_\_\_\_ .25 = \_\_\_\_\_ = \_\_\_\_\_ .75 = \_\_\_\_\_\_ = \_\_\_\_\_  .33 = \_\_\_\_\_ = \_\_\_\_\_  .5 = \_\_\_\_\_\_ = \_\_\_\_\_ | |
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